

September 23, 2002

Mr. Richard Sprott, Director
Division of Air Quality
Department of Environmental Quality
P.O. Box 144820
Salt Lake City, UT 84114-4820

Dear Mr. Sprott:

NOTICE OF INTENT: Modification of Source

Intermountain Power Service Corporation (IPSC) is hereby submitting a Notice of Intent (NOI) to make certain changes at the Intermountain Generating Station (IGS) in Delta. The IGS is a coal fired steam-electric plant located in Millard County. Specifically, IPSC intends to make modifications to Units One and Two at IGS to enhance reliability. IPSC is also requesting a change in a proposed modification from a previous NOI and subsequent Approval Order (AO #DAQE-049-02). This NOI requests an approval order to proceed as described herein and to make applicable Title V permit changes to operate accordingly.

As required by Utah Administrative Code R307-401-2, the following information is provided:

1. **PROCESS DESCRIPTION:** IGS is a fossil-fuel fired steam-electric generating station that primarily uses coal as fuel for the production of steam to generate electricity. Both bituminous and subbituminous coals are utilized. Fuel oil and used oil are also combusted for light off, flame stabilization and energy recovery.

IGS is a two-unit facility currently operating at a rated capacity of 875 and 900 megawatts (MW). We are in the process of uprating to 950 MW per unit as approved through your office. Approximately 5.6 million tons of coal and 600,000 gallons of oil will be used each year in the production of electricity. Upon completion of the current uprate project as approved by DAQE-049-02, boiler capacity will be rated at 6.9 million pounds per hour of steam flow at 2,822 psi.

IGS has in place bulk handling equipment for the unloading, transfer, storage, preparation, and delivery of solid and liquid fuel to the boilers. No changes of this equipment are required nor expected. No changes in the usage of other raw materials or bulk chemicals are required nor expected.

Note that process diagrams have previously been submitted, and no changes from those are proposed here.

PROPOSED CHANGES: Rectified power drives for induced fan motors need to be replaced due to obsolescence. IPSC is also planning to modify the superheat pendent section of each main boiler to accommodate transient temperature anomalies, and to better control exit gas temperatures at the back (convection) pass of the boilers. We plan to install overfire air ports in each boiler to better

control NOx emissions. These changes are needed specifically for reliability, performance and/or routine maintenance needs, will not increase plant capacity beyond the current approved project, and can effect lower emissions.

PRODUCTION SUMMARY: IPSC is in the midst of an ongoing uprate project that will increase generation capacity from 875 to 950 MWhe, with steam flow design increasing from 6.2 to 6.9 million pounds per hour. Design heat input will increase from 8,352 to 9,225 million BTU per hour, requiring the use of 5.6 million tons of coal each year. See AO #DAQE-049-02 and it's corresponding NOI for details. Nothing in this NOI is intended to change those production aspects of the previously approved uprate project.

2. EMISSION CHARACTERISTICS: The composition and physical characteristics of emissions resulting from the proposed modifications are not expected to change with the exception of nitrogen oxides and carbon monoxide as indicated in the following table. Other pollutant emission rates, chimney mass flow, temperature, air contaminant types, and concentration of air contaminants will remain the same proposed in the uprate project. The current pollution control devices (PCD) include low-NOx burners, fabric filters and wet scrubbers.

The following emission rate parameters are provided as required:

Parameter	Current Before PCD	Current After PCD	Resulting change after modifications
Particulates	96,000 lbs/hr	50 lbs/hr	none
Nitrogen Oxides	0.42 lbs/Mbtu*	0.42 lbs/Mbtu	0.34 lbs/Mbtu minimum
Sulfur Dioxide	1.8 lbs/Mbtu	0.06 lbs/Mbtu	none
Carbon Monoxide	0.022 lbs/ Mbtu**	0.022lbs/Mbtu	0.064 lbs/Mbtu maximum
Temperature	325 F	120 F	none
Stack Gas Volume	130,000,000 scfh	130,000,000 scfh	none
Hydrochloric Acid	0.67 lbs/hr	0.02 lbs/hr	none
Hydrofluoric Acid	0.14 lbs/hr	0.004 lbs/hr	none
Antimony	0.007 lbs/hr	0.000008 lbs/hr	none
Arsenic	0.03 lbs/hr	0.00006 lbs/hr	none
Beryllium	0.0009 lbs/hr	0.0000005 lbs/hr	none
Cadmium	0.001 lbs/hr	0.00001 lbs/hr	none
Chromium	0.06 lbs/hr	0.0001 lbs/hr	none
Cobalt	0.006 lbs/hr	0.00001 lbs/hr	none
Lead	0.013 lbs/hr	0.00003 lbs/hr	none
Manganese	0.016 lbs/hr	0.00005 lbs/hr	none
Mercury	0.0001 lbs/hr	0.00001 lbs/hr	none
Nickel	0.009 lbs/hr	0.00005 lbs/hr	none
Selenium	0.005 lbs/hr	0.00065 lbs/hr	none

NOTES:

*NOx emissions are estimated AFTER low NOx combustion.

**Current CO emissions based upon AP-42 factors; modified CO emissions based upon engineering design. Any increase in CO is unlikely to be this large. Since no increased fuel flow is predicted for the changes proposed in this NOI, an AP42 calculation would show no increase in CO. However, it is generally acknowledged that combustion NOx emission controls do increase CO. As a practical matter, we have shown an increase from AP-42 calculations to an average rate based upon engineering design judgement.

3. **PCD DESCRIPTION:** Present pollution control device equipment for combustion includes dual register low NO_x burners, baghouse type fabric filters for particulate removal, and flue gas desulfurization scrubbers. The low NO_x burners provide a nominal 60 percent reduction in potential combustion NO_x concentration, the baghouse filters operate at nominal 99.95 percent efficiency, and the wet scrubbers operate at nominal 90 percent efficiency. Control equipment for the handling and transfer of solid material include dust collection filters.

PCD UPGRADES: The project includes the addition of overfire air (OFA) ports and replacement or repair of dual register low NO_x burners.

4. **EMISSION POINT:** The present emission point for the IGS boilers is a lined chimney that discharges at 712 feet above ground level (5,386 feet above sea level). The chimney location is 39° 39' 39" longitude, 112° 34' 46" latitude.

5. **SAMPLING/MONITORING:** Emissions from boiler combustion are continuously sampled and monitored at the chimney for nitrogen oxides, sulfur oxides, carbon dioxide, and volumetric flow. Opacity is measured at the fabric filter outlet. Other parameters recorded include heat input and production level (megawatt load). Monitoring will remain unchanged. Other emissions not directly monitored are calculated using engineering judgements, emission factors, and fuel analyses.

6. **OPERATING SCHEDULE:** Operation at IGS is 24 hours per day, seven days per week.

7. **MODIFICATION SPECIFICATIONS and CONSTRUCTION SCHEDULE:**

a. **Induced Fan Drive Power Supply Obsolescence & Replacement**

There are four induced draft (ID) fans for each generator at the Intermountain Generating Station. The fans are centrifugal airfoil, double width, double inlet design driven by synchronous motors through variable frequency drives. The existing variable frequency drives are of 1980 vintage, no longer manufactured, require increasing maintenance, certain critical repair parts are no longer available, and frequently fail, although such failures do not currently impact station operation due to fan redundancy. The variable frequency drives are scheduled for replacement beginning in 2003. Although not expected, the motors may require replacement or modification due to current technologies for drive power. Replacement of the variable frequency drive systems will not include modifications of the existing fans.

b. **Changes to Approved Boiler Modifications**

The steam generators at IGS are scheduled for modification to accommodate the 950 MW rating. Previously approved but uncompleted boiler modifications included the addition of preheat steam tubes to the convective pass of each boiler. Due to latest modeling and operational data, this NOI proposes to change those modifications to the radiant section of the boiler, which will include the addition of platen superheater surface. The 36 platen superheater pendants in each boiler are scheduled to be lengthened by approximately 8 feet from their present approximate 40-foot length. The purpose of these changes was for better

combustion control. These proposed changes are still on track for Unit 1 in March 2003, and Unit 2 in March 2004, meeting the construction schedule originally set forth under DAQE-049-02.

- c. **Overfire Air Ports; Low-NOx Burner Maintenance & Replacement**
A multiport overfire air system will be added to ensure stable operation in accordance with specified emissions limits. The overfire air system will redirect approximately 10-15 percent of total combustion air to a staged system of ports located directly above the top row of burners. The overfire system will be designed for operation with newer technology burners expected to eventually replace the existing burners as needed in future years. This NOI requests approval for the overfire air system as well as low-NOx burner upgrades as needed. The overfire air ports installation will begin in March 2003 for Unit 1, and completed in March 2004 for Unit 2. Burner maintenance and repair for Unit 1 and burner replacement for Unit 2 will begin in 2004 and continue through 2008 in a multi-staged process.
- d. **Distributed Control System**
IPSC had proposed replacement and upgrade of the distributed control system at IGS in the April 2001 NOI. However, AO #DAQE-049-02 did not specifically identify the DCS replacement, except for the description in the AO abstract as "other similar changes." For clarity, IPSC wishes to have the DAQ specifically identify the DCS project in the AO, and treat this NOI as such request. The Intermountain Generating Station is controlled by several subordinate systems. These systems include a coordinated control system, a burner management system, a combustion control system, a turbine electro-hydraulic control system, a turbine supervisory system as well as several plant data acquisition and status display systems. Components within these systems are becoming increasingly hard to obtain from either primary or secondary manufacturers. Systems are now causing reliability concerns due to the unavailability of key hardware.

The existing control systems are scheduled to be replaced beginning in the 2004 spring outage. The various control systems will be replaced with a centralized, distributed control system in a phased approach over a several year period to reduce the impact on generation capability. The current schedule shows this project being completed in the spring of 2007.

8. **ADDITIONAL INFORMATION:** IGS operates under a Title V permit (#2700010001). IPSC intends to continue to operate in full compliance with that permit and applicable requirements. No deviations from permit conditions are expected.

Applicability Determinations

Overfire Air. The installation of overfire air ports to the Units One & Two boilers can be expected to cause a decrease in NOx with a concomitant increase in CO. This follows a sliding relationship; i.e., if NOx levels are maintained, no CO increase can result. If NOx is minimized to the greatest extent possible, CO will rise accordingly. IPSC predicts that normal operation will show a slight decrease in NOx with the use of overfire air, resulting in a small increase in CO.

Nothing in this discussion or NOI is meant to indicate any requirement that IPSC must operate the overfire air and low-NOx burners to fully minimize NOx. IPSC's intent in adding further NOx controls is to balance performance with environmental control. IGS intends to continue to operate in such a manner that maximizes performance, yet still meets environmental limits as mandated by regulation and permit. This means that NOx will be controlled to meet short term thirty-day rolling average limits, as well as the annual WEPCO requirements outlined in the current AO.

New Source Performance Standards. IGS operates as a New Source Performance Standard (NSPS) power plant, regulated under Title 40 of the Code of Federal Regulations, Part 60, Subpart Da. The proposed changes do not trigger NSPS applicability. "Modification" is defined at 40 CFR 60.14 to include any change in operation of a source that increases the maximum hourly emissions of a Part 60 regulated pollutant above the maximum achievable during the previous five years. (See 40 CFR 60.14(h)). Even though the use of overfire air ports to reduce NOx can increase carbon monoxide (CO), the additional NOx controls are exempt from NSPS under 40 CFR 60.14(e)(5), which exempts air pollution control systems from NSPS applicability unless they are "less environmentally beneficial" than the systems that they replace¹. As noted below in connection with a similar provision in the NSR rules, whether the use of pollution control equipment is "less environmentally beneficial" is determined by whether there is a contribution to a violation of a NAAQS or a PSD increment, or whether there is an adverse Class I area impact. In this case, any increases in CO from the implementation of NOx controls would not result in any of those circumstances.

Prevention of Significant Deterioration. IGS was constructed under Prevention of Significant Deterioration (PSD) permits, and none of the changes proposed herein are a major modification for PSD purposes. Specifically, 40 CFR 51.165(a)(1)(v)(C)(8) excludes the addition of NOx controls from the definition of modification under PSD². EPA Guidance confirms that pollution control projects which do not render the unit less environmentally beneficial are not physical or operational changes, and hence, are not modifications subject to NSR³. The determination that controls are environmentally beneficial does not preclude collateral increases of non-target pollutants if collateral increases do not cause or contribute to a violation of a NAAQS, PSD increment, or adverse Class I impact. For a worst case CO short term emission rate of 1200 lbs/hr, ISC modeling shows results of 80 ug/m³ for 1 hour and 20 ug/m³ for 8 hours. This is well below the modeling significant levels of 2000 and 500 ug/m³, respectively, confirming no adverse contribution or violation.

¹ 40 CFR 60.14(e)(5) reads as follows:
The following shall not, by themselves, be considered modifications under this part: *
**** * * * * * (5)
The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

² 40 CFR 165(a)(1)(v)(C)(8) provides as follows:
(C) A physical change or change in the method of operation shall not include:
* * * * *
(8) The addition, replacement or use of a pollution control project at an existing electric utility steam generating unit, unless the reviewing authority determines that such addition, replacement, or use renders the unit less environmentally beneficial, or except:
(i) When the reviewing authority has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent air quality impact analysis in the area conducted for the purpose of title I, if any, and
(ii) The reviewing authority determines that the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation.

³ See also UAC R307-4-5-1, definition of "Major Modification" § (2)(h).

See the adopted WEPCO ruling and preamble at FR Vol.57 No. 140, 7-21-1992, 32314, and corresponding EPA guidance, such as the John S. Seitz 7-1-1994 Memorandum "Pollution Control Projects and New Source Review Applicability." Both confirm the EPA's policy stance that pollution control projects which do not render the unit less environmentally beneficial are not physical or operations changes, and hence, are not modifications subject to NSR.

Best Available Control Technology (BACT). IGS was constructed under a PSD permit which required BACT. Since none of the changes described in this NOI are a major modification for PSD purposes, the existing BACT at IGS is still the required level of pollution control. The Utah Air Quality Rules provide that an approval shall be issued if, among other things, "[t]he degree of pollution control for emissions . . . is at least best available control technology except as otherwise provided in Title R307. UAC R307-401-6(1). A requirement that any addition or modification of pollution control equipment must be installed to current BACT is inconsistent with both federal and state requirements. Under federal law, BACT is not required for a change which is not a major modification⁴⁴ Under state law, a state rule enacted for purposes of administering a federal program cannot be more stringent than its federal counterpart unless certain steps are taken, which have not been taken here⁵⁵

Overfire air combined with low-NOx burners do meet BACT for the minor changes presented here, as well as for the modifications currently approved⁶⁶ The definition of BACT in the Utah Air Quality Rules provides that BACT cannot result in emissions exceeding those allowed by the applicable NSPS⁷⁷ The current NOx controls on IGS are consistent with the NSPS applicable to the source and therefore are BACT.

With regard to CO, BACT can only be provided through the application of good combustion practices, which is already in place, and is intimately related to best boiler performance, a strong business incentive. No other technological controls are available for CO in coal-fired boilers. Further, since the increase in CO due to the operation of NOx controls to lower NOx is not considered a modification subject to PSD, BACT for CO is not required.

Potential-to-Emit

The use of overfire air ports in conjunction with low-NOx burners could cause CO to exceed the current PTE estimate for IGS when NOx emissions are minimized to the lowest possible rates. However, we do not expect CO to exceed the original design PTE of 5,468 tons per year. No other PTE values are expected to change.

Should you require further information to expedite the approval of this request, please contact Mr. Dennis Killian, Superintendent of Technical Services, at (435) 864-4414, or MACROBUTTON HtmlResAnchor dennis-k@ipsc.com.

Title V Permit

The changes proposed herein will affect only one condition of the current Title V permit. Condition II.B.1.i limits CO emissions on an annual basis. Since maximizing NOx control efficiency can cause CO emissions to exceed this limit, IPSC requests that this condition be revised accordingly.

Inasmuch as this notice of intent may affect our Title V Operating Permit, I hereby certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Cordially,

⁴ See, e.g., 40 CFR 51.166(j)(2) and (3).

⁵ Utah Code Ann. § 19-2-106(1).

⁶ See the BACT analysis submitted for AO #DAQE-049-02.

⁷ UAC R307-101-2.

George W. Cross
President, Chief Operations Officer, and Title V Responsible Official

BP/RJC:jmg

Enclosure: Filing Fees

cc:	Blaine Ipson, IPSC	Lynn Banks, IPSC
	Bruce Moore, LADWP CES	Eric Tharp, LADWP
	John Schumann, LADWP	James Holtkamp, LLG&M